Original Article
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Medical Journal of the Islamic Republic of Iran (MJIRI)
Iran University of Medical Sciences

A qualitative study on personal information management (PIM) in clinical and basic sciences faculty members of a medical university in Iran

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Received: 7 December 2014 Accepted: 2 June 2015 Published: 7 September 2015

Abstract

Background: Personal Information Management (PIM) refers to the tools and activities to save and retrieve personal information for future uses. This study examined the PIM activities of faculty members of Iran University of Medical Sciences (IUMS) regarding their preferred PIM tools and four aspects of acquiring, organizing, storing and retrieving personal information.

Methods: The qualitative design was based on phenomenology approach and we carried out 37 interviews with clinical and basic sciences faculty members of IUMS in 2014. The participants were selected using a random sampling method. All interviews were recorded by a digital voice recorder, and then transcribed, codified and finally analyzed using NVivo 8 software.

Results: The use of PIM electronic tools (e-tools) was below expectation among the studied sample and just 37% had reasonable knowledge of PIM e-tools such as, external hard drivers, flash memories etc. However, all participants used both paper and electronic devices to store and access information. Internal mass memories (in Laptops) and flash memories were the most used e-tools to save information. Most participants used "subject" (41.00%) and "file name" (33.7 %) to save, organize and retrieve their stored information. Most users preferred paper-based rather than electronic tools to keep their personal information.

Conclusion: Faculty members had little knowledge about PIM techniques and tools. Those who organized personal information could easier retrieve the stored information for future uses. Enhancing familiarity with PIM tools and training courses of PIM tools and techniques are suggested.

Keywords: Information Management, Information seeking behavior, Storage and retrieval, Literacy, Faculty, Iran.

Cite this article as: Sedghi Sh, Abdolahi N, Azimi A, Tahamtan I, Abdollahi L. A qualitative study on personal information management (PIM) in clinical and basic sciences faculty members of a medical university in Iran. *Med J Islam Repub Iran* 2015 (7 September). Vol. 29:257.

Introduction

In information era, we deal with a large amount of information in our daily lives. Information plays an important role in our professional and personal activities and people spend much of their times looking for, sorting, organizing, finding, and sharing information. Today, it is easy for most individuals to record or create, receive and store information; however retrieving, managing and using information seems a more struggling issue. Individuals store personal information in different formats, in multiple locations on multiple devices always without a logical classification or organizational method (referred to as "in-

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formation fragmentation") (1). The information fragmentation causes serious issues for future information retrieval (1). To overcome the challenge, a possible strategy would be an organized collection of personal items arranged in an easily accessible method. The personal information mostly includes information an individual collects, saves and organizes into paper-based or digital vehicles including web pages, emails, address books, etc. in addition, personal information collections include the information that has been left or their sources have been forgotten. Most individuals leave the information to find it again in the original place that they first referred (2).

Information is not always located in its proper place; therefore, we might not be able to find the right information to meet our current and future needs when necessary. For example, information items may be kept in office while the person needs it at home or vice versa (3). On the other hand, information items may never be found or it may be retrieved too late to be useful (2). Despite, the importance of the information items, we cannot spend all our time and energy to find the items we have searched and stored before, however; we can save the time and energy by managing our information items. For example, by prioritizing and organizing them in an appropriate place. Information management is especially more important for busy people and those with larger amount of personal information collection such as health care professionals and physicians (4).

Information management (IM) could be defined as the management of the information resources and systems which create, acquire, organize, store, distribute, and use information (5). The information management in personal perspective or simply, personal information management (PIM) is an activity or the use of information management tools in acquiring, organizing, keeping and retrieving personal information (6). This activity is always performed into various physical environments like to the office by personal computers and mobile devices or at home or even while you are in vacation (1). The goal of PIM is that when for the first time we find useful information, we hardly lose or forget it and the information will be at hand when we later need it (2). In order to facilitate PIM activities there are various electronic or digital tools and applications. Nonetheless people may have little or no information about these tools and the way they are utilized (7).

Individuals use various tools to record and store their personal information; and each person may use his unique and special methods and tools to store and retrieve his/her information (8). However, when information exceeds from a certain amount, effective strategies and tools should be recruited for easier storage and retrieval (3).

A variety of studies have been performed on PIM and here a brief review over major studies would help us to understand the practices of PIM, how and why individuals acquired, stored, organized and retrieve their information. Some studies suggest that the use of PIM tools is lower than expected (9). Bruce showed that participants used a range of methods to keep and organize information that they once founded on the Web and intended to retrieve and re-use later (2). Bergman et al indicated that participants preferred to store project-related information in one project folder; though, they stored them in different folders including documents, e-mail and web favorites folders (1). One study showed that advances in technology and access to the web have affected PIM related behaviors (10). Crystal revealed that students collect and manage their information using different tools under different formats based on the original source of information they encountered to (11). Majid et al investigated perceptions of university students for managing their personal information. This study showed that email addresses, bookmarks, personal text documents and photos were the most frequently stored information. The majority of students used file/folder names and tag/label descriptions to represent the content of their information items. One-half

of the students sometimes had difficulty while retrieving the stored items and only a small number of them used online storage for storing personal information (7). Another study found that teachers mainly classify their information alphabetically or by topic; they mostly use desktop computers (internal storages) and external hard drives for digital information (12). Zhou et al believed that routine daily PIM consumes time more than needed and require extensive involvement of human users; thus, they proposed a model of PIM on mobile devices. They showed that mobile PIM improved perceived usefulness, ease-of-use, and efficiency of PIM (13). Other studies investigated the knowledge and attitudes of Iranian faculty members and PhD candidates about PIM (8), and how healthcare professionals find, store and retrieve drug information (14).

Healthcare professionals have often daily engagement in a large amount of clinical, educational, scientific, and executive activity information. Current study examines the PIM behavior of faculty members of basic and clinical schools of Iran University of Medical Sciences (IUMS) to find about:

• Faculty members' awareness of PIM tools.

• Their behavior regarding acquiring, organizing, storing, and retrieving personal information.

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Methods

We adopted a qualitative approach to investigate the goals of the study which was carried out in2014.The qualitative approach we usedhelped us to enrich our understanding of the phenomenon under investigation.

Randomly selected participants were from basic and clinical faculty members of IUMS. Thirty seven participants (25 in clinical and 12 basic sciences fields) were interviewed. Twenty five (67.6%) were males and 12 females (32.4%). Participants were in a broad age range (36-57yr) and with various specialties. Using a digital voice recorder we recorded the interviews in the offices of participants either in hospital or university. The average time of interviews was about 15 minutes. We transcribed interviews and used NVivo 8 software to code and analyze the data.

During the interviews, we asked questions about PIM activities and the tools they used to manage their personal information.

Results

Details on the main aspects of interviews are shown in Table 1. In regard to PIM, the most important issues were personal information storing (44.2%) and personal information acquisition (24.4%), respectively.

1. Participants' familiarity with PIM

Participants' familiarity with PIM was initially low and just after we introduced the concept; the participants started to identify PIM tools and activities. But through the interview, they implied some PIM tools that they had already used. For instance, one participant stated that he knows little about PIM; however, during the interview he mentioned that he uses students' last names for saving their projects in his PC or he would save his personal photos based on the "date" or "subject". Other participants stated that they used their mental capability to remember most of the information they

Table 1. Details about the four PIM activities and explanations for each category

Category	% of issues	Explanation
Acquisition	24.4	Collecting personal information (printed and e-resources)
Organization	19.9	Methods of organizing personal information (by subject, volume of file, type of file e.g. voice, image, and text, file name and modification date.
Storing	44.2	Keeping personal information up dated based on tool/location of keeping (on paper* in home/office, on electronic devices** in home/office or on cloud services***).
Retrieving	11.5	Personal information retrieval methods and the state of success in retrieving the items.

*Such as note books, paper calendars, drawers, and cabinet.
**Such as PCs, flash memories, E-mail, CD, external hard, and disks.
***Such as Dropbox, Google Drive, Sky Drive.

worked with routinely. Respondents, specifically those who dealt with larger amount of information, were much eager to talk about the PIM tools and activities; it seemed that PIM was an important task to them.

Almost all participants were not familiar with the term PIM and we were needed to give them some definition and samples to ease understanding of the concept. Afterwards, all participants declared that they then know about PIM tools and activities very well.

2. Acquisition

We investigated the methods the participants used to satisfy their information needs. We found that the all participants used both print and electronic resources to acquire information whether at work or home; though most of them (72.9%) preferred electronic materials. Print resources included books (43.5%), journals (13%), magazines (21.8%), newspapers (13%) and pamphlets, brochures, leaflets, catalogs, posters, etc (8.7%). Electronic resources included webpages (33%), subscribed or free e-journals (32%), e-mail posts (23%), RSS feeds (8%), and social networks (4 %). The findings revealed that "Electronic resources" were most popular compared to print materials. One of the participant said:

"*I prefer electronic resources as they are most of the time available to me than the printed ones*".

Another participant said that he would prefer to collect information from electronic resources, though, he was much eager to read them in printed format. Another participant mentioned a number of reasons for preference of printed resources; he stated: "*the e-resources have infrastructure difficulties such as low speed of internet, lack of access to commercial electronic databases, and issues related to unfamiliarity with digital systems*".

3. Personal information organization

We investigated how participants organized their personal information. We found that participants were using Microsoft (MS) Office applications such as OneNote, Excel and OutLook to organize their information on their Windows based PCs or tablets or mobiles, and Google android apps such as Evernote, Catch, I Journal. They preferred web-based apps to paper based tools such as diaries, note book, file and cabinet. Through a thorough of transcribed interviews we identified three categories of information organization styles including: systematic, semi-systematic, and messy.

Systematic style refers to a specific method of organization. For example organization with "subject" or "file name". Ten (27%) participants organized their personal information systematically; whom we call them organized persons. Semi-systematic style refers to people who are well organized individuals, however; occasionally they keep their information items in a catchall file or folder. Twenty five (67.6%) participants of this study applied this style when organizing their personal information items. There were different reasons for following this course of action such as being tired, having large amount of information and lack of time to organize information.

Two participants (5.4%) reported that they never organize their personal information since they do not know how to do it. They usually have stored information in the first place they ran to and when it comes to digital information they usually stored on

Table 2. Frequency distribution of information organization methods

Organizing method	N (%)
Subject	34 (41.0)
File name	28 (33.7)
The date of file creation	16 (19.3)
File type	4 (4.8)
File volume	1 (1.2)
Total	83 (100)

Table 3. Frequency distribution of personal information keeping and storing tools

Tools	N (%)
PCs/laptops	37 (100)
Flash memory	25 (67.7)
External hard	23 (62.2)
Mobile	20 (54.0)
Email	19 (51.3)
CD/DVDs	13 (35.1)
Disks	2 (5.4)
Bookmarks	2 (5.4)

the desktops of personal computers without a logical order. We refer to this style as messy.

According to the interviews, the most used method for organizing information was based on the "subject" and the least on the "file volume". Table 2 shows the frequency of methods for organizing personal information.

4. Storing

We identified two methods for storing applied by participants: 1. Storing temporarily and regularly synchronizing and updating, and 2. Storing permanently once for all. Twenty three (62%) declared they updated their stored information, and therefore they were able to filter important information and omit unnecessary ones. Whereas thirty eight per cents saved information items once and they never synchronize or modify d the stored information.

Findings showed that bulk of personal information could be influenced by the tools used to store information, the location of storing, in and the format of information. We categorized information storing tools to three categories: 1) PCs, Laptops, Tablets, and Mobiles, 2) Peripheral memories such as external hard drivers, flash memory, and writable CD/DVDs, and 3) Cloud services such as Microsoft Dropbox, Google drive, Sky drive, and email storage.

All participants used personal computers/laptops or several tools simultaneously to keep and store personal information. Additionally, 67.7% used flash memory, 62.2% external hard, 54% mobile, 51.3% email, 35.1% CD/DVDs, and 5.4% bookmarks.

The majority of participants (40%) preferred to keep their personal and professional information only at home. Twelve participants (32.7%) preferred to keep information in office and only 10 participants (27.3) preferred to store their information both at home and office. Except for the email, no instance use of cloud services was reported. Therefore, most participants kept personal information at home and the main reason was higher security. They mentioned that security of the governmental and organizational computers generally is low because many people and colleagues use these networked computers, they are vulnerable of abuse or virus attacks. Most participants (73%) preferred to create backup files from their personal information on organizational PCs. Some participants reported that they stored personal information on home PCs or Laptops, and professional information at the office ones; though they believed that storing information at home is safer.

Twenty five participants preferred to store personal information in a digital format; while 12 preferred to make print or write down on paper. The respondents preferred digital formats due to easy saving, easy access, occupying little amount of space, and easy sharing. One respondent said:

P20: "*I prefer to store information in digital format, as it occupies no space and I can share it readily and instantly. But while reading, I prefer prints*".

5. Retrieving

Finally, we identified how participants retrieve personal information. Twenty four participants (64.85%) retrieved personal information based on "subject"; while 10 participants (27/5%) retrieved it based on the "file name" and only 3 participants

(8.1%) retrieved personal information based on the "date" of file creation. Moreover, those who used to organize their information based on the information subject, were more satisfied in retrieving their stored information than those who used date or file name. Nonetheless, some respondents had their own reasons for the method they used to retrieve personal information. Some statements are as follows:

P19: *"...Using the "date" to organize and retrieve information is easier than "subject" for me..."*

P12: *"I usually use "subject" to retrieve information ... .It rarely happens to me missing information, "subject" is the best method of organizing and retrieving information.*

However, most participants (76%) usually faced with problem in retrieving personal information satisfactorily:

P7:*"I rarely organize and retrieve information based on "subject". I also use the "date" of file creation; however when I miss this information, I prefer to look for it in the original location again than looking for it in my folders".*

P22:*"Many times I have forgotten the place of my stored information… In these occasions I have tried to find them again from the original resources*".

Discussion

We investigated 4 activities of PIM (acquisition, organization, storing, and retrieval) among healthcare professionals. The results showed that almost all participants used PIM tools regularly though, were not aware of the PIM concept or terminology. Use of PIM apps was poor among the studied population. A small number of participants (4%) used Excel to organize personal information. This was in agreement with other studies (4,8,9). Participants' unfamiliarity with PIM concept and its advantages was considered as a main issue. Some participants (38%) with less professional responsibilities said that they had little amount of personal information and they feel it is unnecessary to use PIM tools to manage their personal information. Similar to these people, there were other faculties with more critical professional responsibilities who needed to or used large amount of information, nevertheless did not manage their personal information due to lack of time and being busy.

Bookmarks are known as an effective information management tool in many previous studies (2, 15). However, our study showed that the most used tools for saving information were PCs (100%), flash memories (67.7 %) and the least one was bookmarks (5.4%). This difference was probably due to the unfamiliarity of subjects with bookmark application. Another study showed that Iranian healthcare professionals mainly use handheld computers, PCs, external hard drives, E-mails and CD/DVD for storing drug information (14).

Current study showed that the method of organization directly influences the information retrieval. For example, if participants have organized information on "subject" they preferred to retrieve them with "subject". This is what Bruce et al (2004) has mentioned earlier: "*The overall aim of keeping or leaving information is that, later, the individual will be able to access and use the information if it is needed*" (2). Tahamtan et al showed that there was an association between organizing drug information and retrieving the information again (14). About half of participants (41%) used "subject" to organize personal information. This was consistent with the literature, too (7,14).

The participants suggested strategies to improve PIM usage among basic and clinical faculty members, as follows:

Holding introductory meetings and sessions and talking about PIM concept

Participant's unfamiliarity with PIM is an important issue. Therefore, an effective step will be training on PIM concept, tools, and their advantages in personal and professional activities. To overcome computer and internet anxiety, users must be per-

suaded to apply PIM activities and in their daily life.

Assessing faculty members' skills about PIM skills regularly

Since the PIM tools and technologies are being improving rapidly, thus, rehearsal and continuing education seems necessary. Evaluation will help identify strengths/ weaknesses.

Remote learning for PIM

This action would help participants improve their skills at home or everywhere that they could make time.

Regular workshops on the security of data and potential threats

This step will increase the attention level and pushes the faculty members toward PIM tools.

Conclusions

The study revealed that faculty members had little knowledge about PIM tools and activities. Few participants organized their digital personal information systematically; that is by "subject", "file name" or "date of file creation". Those who organized personal information based on the "subject" stated more satisfaction than those who used "date" or "file name". The majority of faculty members kept personal information only at home.

Acknowledgments

We would like to express our gratitude to faculty members who participated in this study. This study was supported by School of Health Management and Information Science, Iran University of Medical Sciences.

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